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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,524	05/30/2001	Tomoki Kobayashi	IIW-002	1359
959	7590	02/07/2005	EXAMINER	
LAHIVE & COCKFIELD, LLP. 28 STATE STREET BOSTON, MA 02109			CREPEAU, JONATHAN	
			ART UNIT	PAPER NUMBER

1746

DATE MAILED: 02/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/870,524

Applicant(s)

KOBAYASHI ET AL.

Examiner

Jonathan S. Crepeau

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11, 13 and 17-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 7-11, 13 and 17-19 is/are rejected.
- 7) ☒ Claim(s) 3-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☒ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office action addresses claims 1-11, 13, 17, 18, and newly added claim 19. The §103 rejection of claims 1-11, 13, 17, and 18 over Voss in view of Reiser and the obviousness-type double patenting rejection of claims 1-11 over S.N. 09/801,312 in view of Reiser have been withdrawn. Applicant's arguments regarding the Reiser reference are persuasive (specifically that it does not fairly suggest compressing the exhaust or controlling the temperature of the exhaust). However, claims 1, 2, 7-11, 13, and 17-19 are newly rejected under 35 USC §102(e) herein, and claim 18 also remains rejected under 35 USC §103. Claims 3-6 contain allowable subject matter. As the new rejections were not necessitated by amendment, this action is non-final.

### ***Terminal Disclaimer***

2. The terminal disclaimer filed on November 10, 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 09/908,204 has been reviewed and is accepted. The terminal disclaimer has been recorded.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 1746

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 7-11, 13, and 17-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Kanai et al. (U.S. Patent 6,696,192). In Figure 26, the reference teaches a fuel cell system comprising a water-permeable membrane type humidifier (123) for exchanging heat and humidity between supply air and cathode exhaust gas, a compressor (124) downstream of the fuel cell cathode exhaust and upstream of the humidifier, and a pressure control valve (125) downstream of the humidifier. The compressor creates a negative pressure in the air supply (see col. 17, line 49). The humidity of the air supply (measured at sensor T1) may be used to control the pressure control valve, thereby controlling the pressure of the cathode exhaust (see col. 19, line 67 et seq.). The compressor of Kanai would inherently function to control (i.e., increase) the temperature of the exhaust gas before it is introduced into the heat exchanger. As such, the instant claims are anticipated.

The applied reference has a common assignee and inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131. The rejection may also be overcome by filing a certified translation of the priority document.

***Claim Rejections - 35 USC § 103***

5. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Voss in view of Reiser in view of Van Dine et al (U.S. Patent 6,331,366).

Voss et al. is directed to a method for controlling the temperature of an oxidant supply gas to be supplied to a fuel cell (see col. 4, line 11). The method comprises the step of introducing the supply gas into a heat exchanger, and at the same time, introducing an exhaust gas discharged from the fuel cell into the heat exchanger to perform heat exchange between the gases (see col. 4, lines 15-28; Fig. 2).

Voss et al. do not expressly teach that the supply gas has a negative pressure, as recited in claim 18, or that the temperature of the exhaust gas is controlled prior to introducing it into the heat exchanger, as also recited in claim 18.

The patent of Reiser is directed to a fuel cell assembly in which blowers (i.e., compressors) 17A, B are located downstream of the cell stacks and suck oxidant reactant therethrough (see Fig. 6; col. 7, lines 19-24).

Van Dine et al. teach a fuel cell system comprising a heat and mass transfer device (92) along the oxidant supply and exhaust flow paths, and a further heat exchanger (101) located downstream of the cathode exhaust but upstream of the mass transfer device.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the fuel cell assembly of Reiser in the system of Voss et al. In column 2, line 26, Reiser teaches that an object of his invention is "to provide improved methods and apparatus for the delivery of input reactants to fuel cells." Accordingly, the artisan would be motivated to use the fuel cell

Art Unit: 1746

assembly of Reiser in the system of Voss et al. Further, the disclosure of Reiser that the blowers “pull” oxidant through the fuel cell fairly suggests that the supply gas has a negative pressure and that the exhaust gas has a higher pressure than the supply gas, as recited in claim 18.

Further, the artisan would be motivated to use the heat exchanger (101) of Van Dine et al. in the system of Voss to control the temperature of the exhaust gas prior to its introduction into the combined heat and humidity exchanger. In column 9, line 65, Van Dine et al. teach the following:

**90 and the plant exhaust passage 80. A plant exhaust heat exchanger 101 may be secured along the plant exhaust passage 80 upstream of the direct mass and heat transfer**

**device 92 in order to lower a temperature of the plant exhaust stream within the passage 80 prior to entering the transfer device 92. The mass and heat transfer device 92 is**

As such, the artisan motivated to use the heat exchanger (101) of Van Dine et al. in the system of Voss to more precisely control the temperature of the exhaust gas prior to its introduction into the combined heat and humidity exchanger.

### ***Allowable Subject Matter***

6. Claims 3-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

Art Unit: 1746

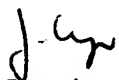
Claim 3 recites that the pressure of the exhaust gas is controlled depending upon the temperature of the supply gas. Kanai et al '192, while it teaches the use of humidity for pressure control, does not fairly suggest the use of temperature for pressure control.

### *Conclusion*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr, can be reached at (571) 272-1414. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonathan Crepeau  
Primary Examiner  
Art Unit 1746  
February 3, 2005